

# NAVY MEDICINE

July-August 1997



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**COVER:** In Queensland, Australia, personnel of the Deployed Public Health Laboratory (DPHL) place a mosquito trap during exercise Tandem Thrust '97. Story on page 2. Photo by CDR A. Jeffrey Yund, MC.

## Corrections

In the March-April issue on page 13, LT Berry's first name should be Jon rather than Jan. But then again, what's wrong with the name Jan?—Jan Kenneth Herman, Editor

In the May-June issue on page 27, the second author's name should read LT Anita Nusbaum. We regret these errors.

# Navy Officer Makes a Difference in Texas

If you've ever thought one person couldn't make a difference, ask Navy Medical Service Corps officer, LT Darwin G. Goodspeed.

Texas legislation recently passed a bill that Goodspeed proposed. Goodspeed, a resident at the U.S. Army-Baylor University Graduate Program, drafted a bill proposal for Texas legislation that would save taxpayers big bucks, and also adequately fund emergency medical services (EMS) and trauma initiatives that would save lives.

No one questions the importance of EMS, but with the United States spending more than \$176 million in federal and state funds last year providing EMS, it's no wonder why the Texas state legislature jumped at the chance to get the proposed bill passed.

Goodspeed's bill—Senate Bill 102—is a simple one: the legislation will create an emergency medical services and trauma care system fund to finance county and regional EMS systems. Money will be raised by assessing an EMS/trauma care system fund fee of \$2 on each new or renewed driver's and commercial driver's license and learner's permits.

Given that approximately 6 million driver's licenses are renewed or issued each year in Texas, the fee would raise about \$12 million for the state's EMS/trauma system. Having some funding in this area would help to



LT Darwin G. Goodspeed, MSC

enhance the development of training of personnel and equipment. We've seen, from pilot studies, this can have a significant impact, especially in rural areas," said Goodspeed.

So how was one person able to figure out a way to solve the dilemma of needing better services but not having the funding? Goodspeed conducted a phone survey to each of the states and asked seven questions about trauma funding, and the source of the funding. The result of his research revealed that the states with the best and most consistent funding

have developed a unique funding mechanism that is independent of state general funds and federal funding.

Goodspeed's bill will ensure funding is available for services, equipment, and training for EMS/trauma services.

If you're in Texas and find yourself being rescued by the EMS/trauma team, you can thank one sailor who made a difference. □

—Story by LT Edie Rosenthal, Public Affairs Office, Bureau of Medicine and Surgery, Washington, DC.

# Navy Public Health at Tandem Thrust '97



CDR A. Jeffrey Yund, MC, USN  
LCDR Stanton E. Cope, MSC, USN  
HMC(SW/FMF) Stephen M. Farmer, USN  
CAPT Benjamin S. Mitchell, MC, USN  
CAPT Gregg S. Parker, MC, USN

The largest U.S. Pacific Command exercise in 15 years, Tandem Thrust '97, took place in March in the rugged Shoalwater Bay Training Area (SWBTA) in Queensland, Australia. Approximately 28,000 troops participated in this Australia-U.S. combined/joint amphibious assault and live fire exercise. In support of Tandem Thrust '97, the U.S. Navy sent the Deployed Public Health Laboratory (DPHL) into the field. The mission was disease and

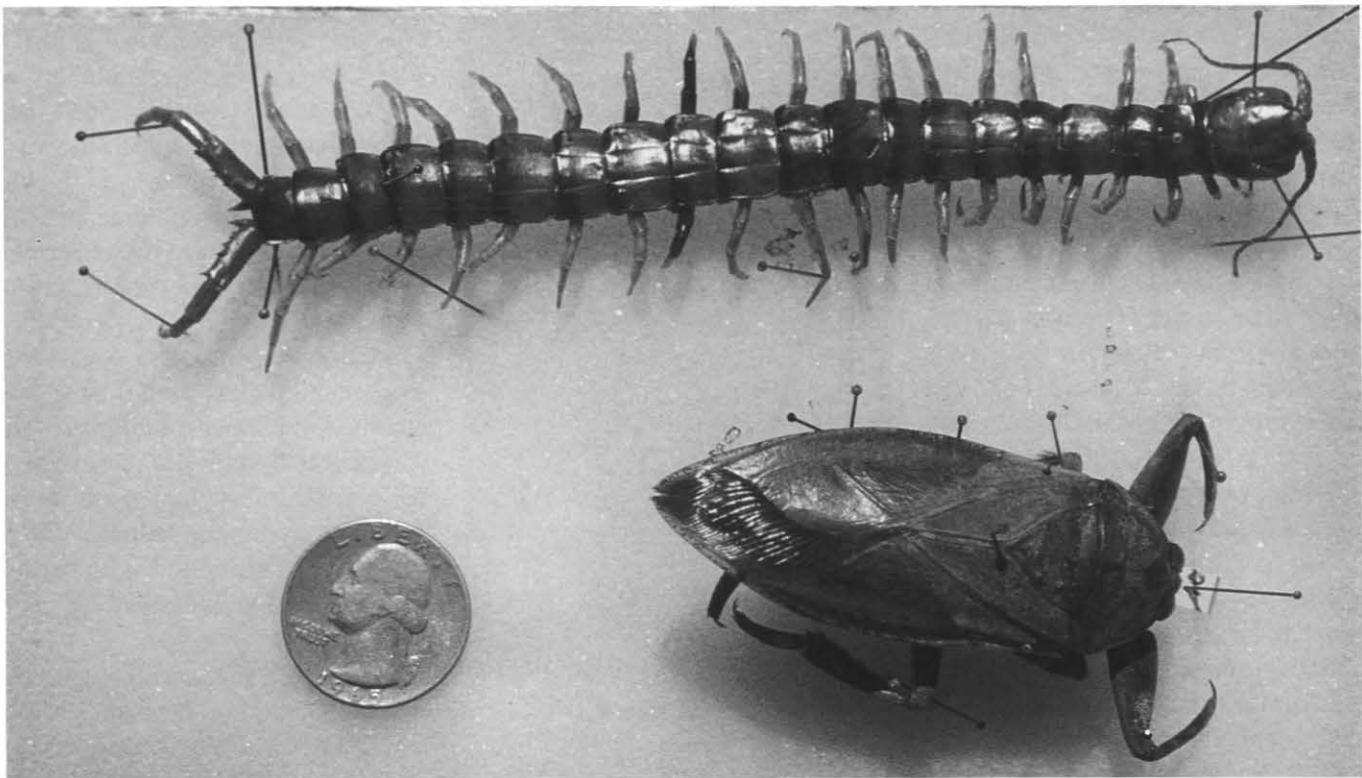
vector surveillance, and operational preventive medicine. By far, most injuries and illnesses in the field are preventable. The ultimate goal of the lab was not simply to document, but to prevent, as much as possible, adverse health conditions which impact readiness.

SWBTA, adjacent to the Great Barrier Reef Marine Park, consists of over 1,000 square miles of saltmarshes, mangrove swamps, tidal creeks, forests, meadows, and mountains. The

health threats associated with this diverse area were numerous and substantial. Mosquito-transmitted viruses, especially Ross River virus and Barmah Forest virus, were a major concern as they are endemic in the training area, and Tandem Thrust '97 was held at the peak of the transmission season.

SWBTA is home to some of the world's most dangerous animals. Six of the world's 10 most deadly snakes make their home here, along with the

Opposite page: LT Monteville prepares to inject a tapeworm. Below: Centipede and water bug. Because a bednet had been improperly set up, this centipede woke a sailor by crawling across his face.



usual complement of spiders, scorpions, centipedes, and assorted vermin. Other land threats include kangaroos, feral pigs and horses, and dingoes (wild dogs), all of which may become aggressive. SWBTA also has its fair share of dangerous marine animals. The box jellyfish, blue-ringed octopus, stonefish, and cone shell can all inflict painful injuries with potentially fatal outcomes. Additionally, saltwater crocodiles in SWBTA reach 18 feet in length.

All of the above threats, along with the usual deployment issues of diarrheal disease, heat exposure, motor vehicle accidents, and general safety, made Tandem Thrust '97 a highly challenging exercise for preventive medicine specialists. A detailed preventive medicine guidance message (COMSEVENTHFLT

031005Z DEC 96) was disseminated well in advance of the exercise, and countermeasures for each of the threats were prescribed. The message also directed that all participating units provide thorough preventive medicine briefs to personnel prior to departure.

A detailed Powerpoint™ briefing appeared on a World Wide Web home page specifically set up for Tandem Thrust '97 preventive medicine topics. Another important aspect of pre-deployment preparation was a large serosurvey of U.S. forces with over 1,300 blood samples and questionnaires obtained from selected Army, Marine Corps, and Navy units. Comparing postdeployment samples and data should yield valuable knowledge concerning exposure to infectious agents (including Ross River virus)

and utilization of personal protective measures.

Prevention was emphasized and highlighted heavily throughout the planning for this important exercise. One manifestation of this commitment was sending the DPHL into the field in a highly visible effort to support prevention. In addition to providing specific preventive services, the DPHL was tangible proof of the increasing appreciation of the importance of preventive medicine for decreasing rates of illness and injury in the operational setting.

#### **DPHL Capabilities and Activities**

The DPHL was composed primarily of personnel from echelon four commands of the Navy Environmental Health Center, Norfolk, VA. Seven were from Navy Environmental and

Preventive Medicine Unit No. 6 (NEPMU-6), Pearl Harbor, HI, and two were from the Navy Disease Vector and Ecology Control Centers (Bangor, WA, and Jacksonville, FL). The 10th person was from Navy Medical Clinic Pearl Harbor. The team, including an epidemiologist, entomologist, microbiologist, environmental health officer, five preventive medicine technicians, and an advanced laboratory technician, assembled at NEPMU-6 in early February. Departure was from Hickam Air Force Base on a USAF C-5A on 13 Feb. The aircraft also carried the DPHL's fully loaded USAF cargo pallet containing all equipment considered necessary for the deployment.

Located on the compound of the Combined Medical Treatment Facility (CMTF) at Camp Samuel Hill, the DPHL occupied a GP medium tent adjacent to the CMTF's laboratory (a 3rd Medical Battalion asset). The DPHL provided public health consultative, laboratory, and technical services not usually available in an operational environment. The lab was organized into four sections, each with staff who had primary duties in that section. As work load varied, though, each staff member performed tasks in other sections as needed. The sections were epidemiology, entomology, environmental health, and microbiology. CDR A. Jeffrey Yund, MC, the DPHL team leader and CTF PMO, reported both to the CMTF commanding officer (LTC Darrell Duncan, Australian Army) and to the CTF surgeon (CAPT Gregg S. Parker, MC, USN) on *USS Blue Ridge* (LCC-19).

### Epidemiology Section

The epidemiology section, staffed by CDR Yund, HMC(SW/FMF) Stephen M. Farmer, and HM2 Michael Broschart focused on disease surveillance. Weekly data on disease and



A large walking stick

nonbattle injuries (DNBI) were collected from the four major camps involved in the exercise by fax, phone report, and personal visit. Staff used a laptop spreadsheet to record disease category case numbers and camp population figures. Rates for each category were calculated, displayed graphically, and analyzed.

Surveillance efforts also focused on Ross River virus illness, a potentially disabling condition to which few, if any, U.S. troops would have been exposed in the past. Finding all cases was important so that as much as possible could be learned about the epidemiology of the illness in our susceptible, deployed military population. Patients with suspected disease were interviewed and examined by team members, and serum samples were obtained. Six cases of acute Ross River virus illness were identified.

Surveillance measures also included two surveys to evaluate compliance with personal protective measures (PPMs). An inspection survey (of 575 cots in 75 berthing tents in four different camps) for correct installation and use of bednets yielded especially low rates in one camp. Only 38 percent of the 116 cots inspected had a bednet present. The camp commandant was contacted, and corrective action was taken. Also, a 25-question survey of 88 individuals addressed use of PPMs against biting insects. Awareness seemed high, but compliance was clearly lower than anticipated. The data collected from all of these sources will assist in improving the preventive medicine recommendations given to operational forces and help further reduce DNBI casualties.

### Entomology Section

LCDR Stanton E. Cope, MSC, HMC(FMF) Celso Yago, and HM2(FMF) Keith Leverton staffed the entomology section. Efforts focused primarily on collection of live mosquitoes for virus isolation attempts, but a number of other significant projects were also completed.

Over 75,000 adult female mosquitoes were trapped, sorted, frozen on dry ice, and shipped overnight to the University of Sydney medical entomology laboratory at the Institute for Clinical Pathology and Medical Research (ICPMR), Westmead Hospital. Our Australian collaborators have identified over 40 different species, many of which are known vectors of Ross River virus and other viruses as well. So far, Ross River virus has been isolated from five of the pools of 25 mosquitoes each. The isolates are from four mosquito species, and two of them are from Camp Sam Hill where well over 1,000 troops lived for more than a month.

A second project was designed to

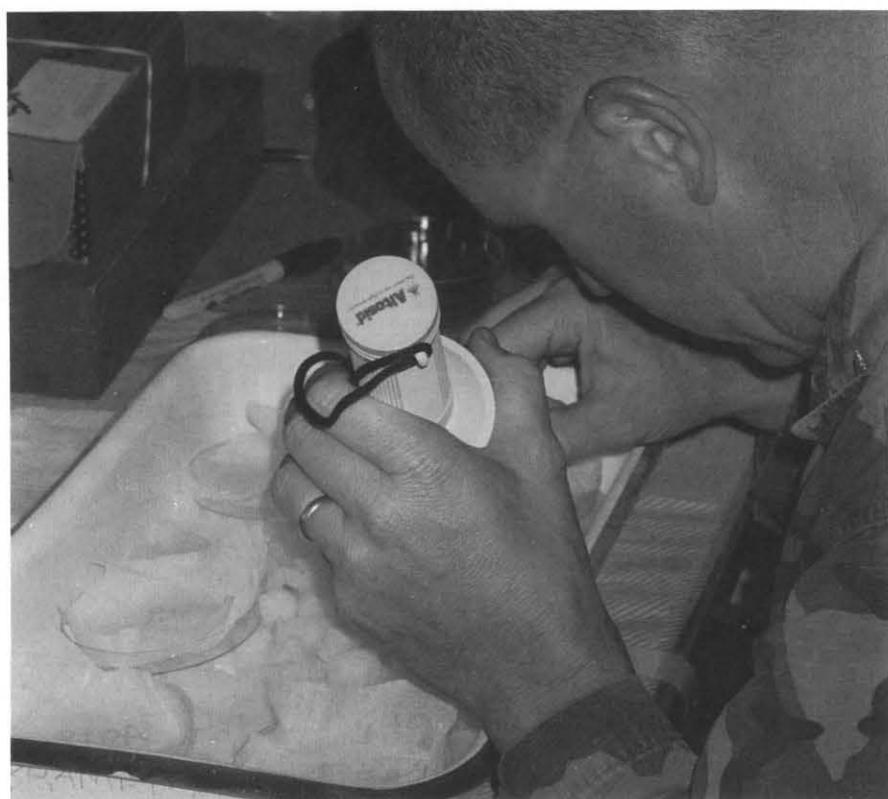
examine a biological phenomenon known as transovarial transmission (TOT). TOT is the passage of a virus from an adult female mosquito through the egg stage to her offspring. This can result in recently-emerged mosquitoes being infective immediately, without having to feed on a reservoir animal to acquire the virus. We attempted to assess TOT in the primary Ross River virus vector *Aedes vigilax*. Over 100,000 immature stages were collected from a local salt marsh, reared to adult stage, and then shipped to the Westmead laboratory. Testing of these mosquitoes by virus isolation techniques is still incomplete, but if positive will verify the existence of Ross River virus TOT in the wild.

Other studies included evaluation of a new type of mosquito trap, assessment of currently used filth fly baits, dengue threat assessment, and procurement of over 1,000 arthropod specimens for use in teaching at the Preventive Medicine Technician School, San Diego, CA.

### **Environmental Health Section**

ENS Allen Wright and HM1 Vernon Stiles provided environmental health consultation, support, and training to all the camps at SWBTA. They augmented USMC and Australian Army preventive medicine personnel in the training area and worked very closely with them. Comprehensive sanitation surveys performed at five different camps helped reinforce the basic field sanitation practices that minimize the potential for water- or food-related infectious disease outbreaks. Bacteriologic water testing quality assurance was performed as a service for the medical units at SWBTA.

A highlight of the exercise was the establishment of a solid relationship with the Australian Army 4th Preventive Medicine Company, also at the CMTF site. The cooperative effort



LCDR Cope inspects the day's catch of "mossies."

with the Australians exemplified the combined nature of the exercise and benefited both services and countries.

### **Microbiology Section**

LT Marshall Monteville and HM1 Michael Humberstone provided the microbiology support. Capabilities included enzyme-linked immunosorbant assay (ELISA) testing for antibodies to Ross River and Barmah Forest viruses, as well as flaviviruses. Training and reagents were provided by the Arbovirus and Emerging Disease Unit at ICPMR according to a previously arranged cooperative agreement. To our knowledge, this is the first time Ross River virus ELISA testing has been done in a field setting. Other services included bacteriologic culturing of wound, respiratory, and enteric samples, basic parasitology, and some serology.

The section performed ELISA testing on over 3,500 samples, most of which were part of a protocol to verify the reliability of the technique in the field environment. In addition, samples from 19 individuals with suspected Ross River virus illness were tested, and the illness was confirmed by finding IgM antibody in six individuals. Furthermore, live virus was isolated at ICPMR from the serum of two of the six cases. These are the only reported human Ross River virus isolates so far this year.

One hundred and forty-four clinical samples were tested during the deployment. The health care providers at the CMTF felt that culturing was an extremely valuable service to have available in the field. The capability to perform basic parasitology testing resulted in reporting the exact species (*Taenia saginata*) of a

4 1/2-foot tapeworm passed by a young marine. The cestode, affectionately named "Tippy," drew many requests for display from visitors to the DPHL, including a number of U.S. and Australian flag and general officers.

### Public Health Bulletin

A unique accomplishment of DPHL was the publishing of a public health-oriented newsletter. The *TANDEM THRUST 97 Public Health Bulletin* allowed all of the DPHL team members a forum in which to inform medical personnel about deployment public health subjects. Just as with the lab itself, the focus was disease and injury prevention. The four newsletters also published articles contributed by authors outside DPHL including Australian Army preventive medicine personnel.

### Conclusion

Since 1990/91 when the Navy Forward Laboratory made major contributions in infectious disease diagnosis and public health support<sup>(1)</sup> for Operations Desert Shield/Storm, deployed laboratories have continued to play a role in large operations. Restore Hope, Restore Democracy, and Joint Endeavor are prominent examples. Further, the concept of a deployed laboratory has been codified into Naval Doctrine as the "Forward Deployable Laboratory."<sup>(2)</sup> Because of much advance planning, coupled with the support of critical people at U.S. Seventh Fleet, Pacific Fleet, and Pacific Command, DPHL was able to participate in Tandem Thrust '97 and to contribute to the exercise in a number of significant ways.



One of Australia's many primitive spiders, which include Brush-footed Trapdoor spiders (also known as whistling or barking spiders).

Deployment surveillance has become a critical function for operational preventive medicine. As the draft DOD Directive and Instruction on Joint Medical Surveillance become reality in the near future, surveillance for specific locally occurring infectious diseases (such as Ross River virus illness), for vectors of arthropod-borne illnesses, for disease and nonbattle injury, for compliance with recommended personal protective measures, and for changes in state of health after compared with before deployment will become standard.

These aspects of deployment surveillance will allow us to know what factors are having an impact on the health of the force. Armed with that knowledge, we will be better able to

intervene to prevent those adverse health outcomes and "maintain the fighting strength."

Surveillance, together with investigation of disease outbreaks and advanced clinical and public health microbiology services, is applicable to exercises as well as to operations.

The DPHL team wanted to build on the growing history of deployed laboratories in the field during major operations, and to extend those capabilities to a large-scale exercise. Even though the deployment was relatively brief, the threats to the health of the deployed population were very real. The importance of preventive medicine and public health in the field environment for dealing with those threats was clear, and deployed laboratories such as DPHL are likely to be incorporated into major exercises more often in the future.

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CDR Yund is Epidemiology Department Head at NEPMU-6, Pearl Harbor, HI. LCDR Cope was Entomology Department Head at the same facility, and transferred in July 1997 to the Navy Environmental Health Center, Norfolk, VA. HMC Farmer is Epidemiology Department LCPO and CAPT Mitchell is the Officer in Charge at NEPMU-6. CAPT Parker was Surgeon, U.S. Navy Seventh Fleet.

# Naval Medical Center San Diego Goes Wireless

The Naval Medical Center San Diego (NMCSD), CA, has implemented and uses one of the largest Local Area Networks (LAN) within the DOD medical community. The NMCSD LAN supports over 5,000 local and remote users and provides traditional network services, such as Composite Health Care System (CHCS) access, file sharing, print services, e-mail, and World Wide Web (WWW) browsing. This networking environment provides substantial challenges, among the largest is keeping current with the movement of staff from one office locale to another. As a result, the Information Resources Management Department (IRMD) relocates or adds an average of 65 network drops per month at a cost of approximately \$150 per drop. In order to keep pace with the number of requests for new and/or relocation of network drops, LT David B. Lile and members of his staff began evaluating wireless technologies to augment the current NMCSD LAN in order to reduce the number of costly relocations.

In May 1996, NMCSD began prototyping a wireless network product from Breeze Wireless Communications, Inc. (BreezeCom). The purpose of this prototype was to evaluate the feasibility of using wireless technology within the NMCSD medical environment. The BreezeCom equipment was chosen due to its ability to seamlessly integrate with the existing NMCSD Ethernet infrastructure and its compatibility with computer equipment from most other equipment manufacturers. This equipment provides wireless services and links to the current backbone, which enables users to move their workstations anywhere in the office without losing connectivity or requiring costly rewiring. Additionally, a PCMCIA Laptop card is available that allows a user to roam throughout a wireless facility while remaining connected to the network. The wireless components use frequency-hopping, spread-spectrum radio signals that provide data throughput of up to 3Mbps per channel (Laptop throughput 1Mbps). By utilizing multiple wireless switching devices, effective throughput up to 15Mbps can be achieved.

The initial testing of the equipment was conducted at the Naval Training Center (NTC) Branch Medical Clinic using

18 wireless devices located throughout the building. Five access points were used for an area of approximately 20,000 square feet. The test included single-station and multiport adapters (five workstations) as well as PCMCIA Laptop adapters. The test results were outstanding and the setup time was minimal since no specific software drivers are required. Mr. Dennis Navarro, an IRMD network manager, summed it up by saying, "it must be magic."

The network connectivity proved to be seamless to the users, and the network availability and reliability proved to be better than expected. We did experience a few minor problems with the multiport adapters; however, the problems were quickly resolved by BreezeCom. The prototype test did indeed provide a solid wireless network solution at a reasonable cost. Benefits include:

- Flexibility to move PCs anywhere in the office environment.
- Wireless LAN installation where wired LANs are expensive or physically impossible.
- Ability to integrate with and augment existing wired LAN.
- Instant deployment of LAN devices.
- Low maintenance cost.
- Security provided by Spread Spectrum Technology.

Currently NMCSD is implementing wireless connectivity to an additional 43 users at the NTC Branch Medical Clinic in support of the newly formed Primary Care Group. These wireless stations will provide the user with connectivity to CHCS, Internet mail, Medline services, and WWW services. Additionally, wireless connectivity is being provided to the security, safety, MWR, and psychology departments at the main campus. The initial prototype users were excited about using this new technology and are extremely satisfied with the flexibility that wireless computing offers. Future plans include testing bridging services that can effectively create an extended wireless network up to 7 miles. □

—Story by LT David B. Lile, Head, Information Resources Management Department, Naval Medical Center, San Diego, CA.

# Why Marketing Health Care in the Military Can Help: An Historical Perspective

LCDR E.C. Ehresmann, MSC, USN

**T**here is an old Chinese saying that a journey of a thousand miles begins with a single step. The year 1993 dawned with anticipation of sweeping change. A new President, William Jefferson Clinton, took office, and his administration undertook the task of realigning and streamlining the military to face new world challenges wrought by several years of geopolitical change. In a time of increased emphasis on reducing the nation's budget deficit, controlling the costs of national medical programs, and changing our national military strategy, the Military Health Services System (MHSS) is part of this journey of change. Concurrently, President Clinton's Health Care Reform Plan was being designed to provide a national health care system which ensured universal access while controlling the rate of increase in health care costs. Like every other facet of the medical community, military medicine has had to respond to the escalating demand for health care reform. These parameters, for example, cost containment and access to care, present the Department of Defense (DOD) and the services with a unique opportunity to enhance the performance of the MHSS to ensure access to quality health care for beneficiaries while undertaking initiatives to enhance our system's cost-effectiveness.

It has been apparent for the past several years that the health care cost issue is becoming more prominent

on the list of the nation's most pressing economic, social, and political problems. Within the military departments cost concern has been exacerbated by reductions in the defense appropriations provided by Congress. According to the General Accounting Office (GAO), CHAMPUS shortfalls from FY85 through the mid-1990's totaled in excess of \$1.8 billion. Underestimating, underfunding, carryovers, supplemental appropriations, and transfer authorities have tended to obscure and delay solutions to the CHAMPUS problem. Just as the major employers in the United States are aggressively searching for solutions, even to the extent of advocating some form of health insurance, the military departments, DOD, and Congress have been trying to develop programs which will reduce the impact of medical costs to the nation's defense expenditures.

High costs, wide beneficiary dissatisfaction, and inadequate readiness for war stirred widespread interest in changing the military's system of care. In 1990, the Assistant Secretary of Defense for Health Affairs (ASD(HA)) proposed creating a system of coordinated care to address many of the problems confronting the delivery of DOD health services. It is expected that this coordinated care system will create a health care system that is managerially sound, eliminate much uncertainty in cost and demand, and introduce accountability to health

care operations. In essence, this system will create a "health network" approach which encourages patients to use medical treatment facilities (MTFs) and preferred civilian networks who share the risks of unit cost and volume. The pace of change for the MHSS is swift and the path ahead is not without risk, but there is no question that the medical community of the Armed Forces can excel in this new environment, referred to as TRICARE, if the services are not afraid to extend their horizons to new ideas, like marketing health care within the military medical departments.

In the past, MTFs have had a captive customer base and thus no inclination for a marketing orientation. Both civilian and military hospitals used to look askance at the idea of marketing, but they can no longer afford to do so. Staying in business has become a top priority. There is also growing public clamor to check runaway health costs by closing unneeded hospitals and restructuring expansion. Recognizing that it is too expensive to continue to attempt to be all things to all people, many hospitals including MTFs should see marketing strategies as the key to their economic survival.

In today's health care environment, health care marketing can be a major management resource for MTFs if it is understood and applied effectively through the planning process. For health care executives to succeed in this ever-changing environment, they will need a clear grasp of those essential strategic concepts that lead down the pathway to growth. Unfortunately, there are still too many health care managers who allude to the need to "market" their organizations' services, while merely pursuing a few promotional activities in search of a quick fix. Clearly, few of the health care problems facing military and civilian hospitals are amenable to quick solutions. Most of these problems require a deep understanding of the environment, the market and the way it segments itself, and the organization's goals for each segment. Moreover, these problems require the health care manager to master well-established marketing concepts such as positioning, the marketing mix, channels management, consumer behavior, and marketing budgeting.

Consistent with the dynamics of National Health Care Reform, the military health care system has embarked on a major program of health care reform, known as TRICARE. TRICARE is designed to ensure the most effective execution of the military health care mission. It recognizes the need to ensure access to a secure, quality health care benefit, to control costs, and to respond to changing national military and health care priorities. In order to promote sound health care reform within the

MHSS, the medical community must expand its knowledge base, including conceptual and schematic frameworks on the omnipotent marketing process.

Since marketing military health care is predominantly viewed as being in a pre-paradigmatic state, the development of marketing military health care epistemology has become a priority. Expository works examining and supporting the increased involvement of military health care in the marketing arena have surged over the last decade. Acknowledging the recency of marketing to the health care industry, specifically military health care, it is understandable that military health care data bases and conceptual orientations are insufficient at this time. Thus, a critical and selective synthesis of research and conceptual viewpoints from strategic management theory may be beneficial.

The value of studying strategic management theory and behavior comes less from any specific applications and more from how it shapes the way managers come to think about their jobs and the range of options to be considered. Appreciation of the theory of strategic management thus results less in a set of principles to be applied to concrete problems—although there are some—and more to enhancing one's breadth of possibilities. Managers "sacrifice"—to borrow a term from Herbert Simon—because they have neither the wits nor the time to find optimal solutions.

During the past 25 years the military departments have experienced many changes. Probably the greatest change affecting health care delivery was the decision by the national leadership to adopt an all-volunteer force. While the predominantly drafted Armed Forces were composed of mostly single men and women, the all-volunteer force included a much larger number of family members, thereby significantly increasing total beneficiaries. This change occurred mainly during the 1970's. In addition, the number of military retirees increased at a greater rate than previously due to the larger career force which had entered active duty during World War II and the Korean War. Since the late 1950's, DOD has provided medical care to those unable to gain access to a military medical facility through CHAMPUS. This is a package of benefits roughly equivalent to the Blue Cross/Blue Shield High Option. Until 1987, CHAMPUS claims were paid by the Office of the Secretary of Defense and were not a major concern of the individual departments. As a result there was no direct cost to the military departments if medical facilities referred patients to the civilian community under CHAMPUS when they experienced shortages in providers or budget authority.

Since 1986, the medical community of the Armed Forces has made progressive efforts to enhance regional coordination in the delivery of health care. In 1991, DOD mandated the implementation of a Coordinated Care Program designed to provide MTF commanders with the tools, authority, and flexibility needed to increase access to care and maximize effective use of resources while maintaining excellent quality care supported by comprehensive graduate medical education programs. A major intent of this agreement referred to as TRICARE was to establish a structure for joint planning, development, and coordination. The medical community of the Armed Forces have the opportunity to accomplish that goal which can provide beneficiaries with quality, cost-effective health care facilitated by a system which will provide a primary care manager and personal assistance through all phases of secondary and tertiary care.

In the past, MTFs have primarily operated individually because they had a captive customer base and thus no inclination for a marketing orientation. Change is occurring at an alarming rate for managers of health care in both the military and civilian sectors; it seems depressingly slow for many outside the system. Military and civilian health care organizations look different from varying vantage points and the multiplicity and complexity of perspectives is a crucial aspect of the managerial challenge. Health care organizations must not only strive to attain reasonable levels of efficiency, quality, and even equity, but also convince their clients that they are doing so. If directing a health care organization as simply a technical task, management would be a snap, but all organizations, and especially those dealing with human services, must function in changing social and symbolic contexts that affect internal processes as well as the environment and increase uncertainty and the importance of personality, leadership, and politics.

The medical community of the Armed Forces, like other health care organizations, is using a number of proactive, reactive, independent, and/or intradependent marketing efforts to influence policy development while attempting to eliminate apolitical images. The medical communities of the Armed Forces are becoming more and more actively involved in local, state, and national policies, and the 1990's have been deemed the decade of strengthening the medical functions of the DOD. Rubenstein, Tucker, and Crompton describe how marketing military medicine has made some inroads in pursuing the efficient conduct of

health care operations and ensuring that the pool of consumers are satisfied. As national attention shifts from defense and foreign issues to domestic issues, it is projected that more members of the military health care community will become active participants in the marketing arena. Crompton and Lamb reveal that in the past both military and civilian systems have offered their constituents standardized services. This has been termed the lowest common denominator approach to service delivery. Such a service seeks to satisfy the maximum number of people at some minimal level.

In today's health care environment, marketing can be a major management resource for the medical communities of the Armed Forces if it is understood and applied effectively through the planning process. For health care executives to succeed in this ever-changing environment, they will need to elect from among three choices: (1) do nothing, (2) do the same thing harder, or (3) do something different. As Will Rogers once said, "Even if you are on the right track, you will get run over if you just sit there."

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LCDR Ehrmann holds a Ph.D. in public policy, and is assistant professor, U.S. Army-Baylor Graduate Program in Health Care Administration. On 2 May she was selected as the program's Deputy Program Director. This is the first time since 1947 when this was a certificate in training program that the Navy has been selected for this position.

# U.S. Army-Baylor University Graduate Program in Health Care Administration

The U.S. Army-Baylor University Graduate Program in Health Care Administration, one of the oldest programs of its kind in the nation, is a Department of Defense (DOD) program which affords uniformed services officers, to include the U.S. Coast Guard, Department of Veterans Affairs, and DOD Civil Service personnel, the opportunity to attend a federally funded masters program. The program is specifically tailored to meet the graduate health care education needs in the essential theoretical and applied skills, knowledge, and abilities necessary to effectively lead and manage the delivery of health services in a variety of settings. The program is fully accredited by the Accrediting Commission on Education for Health Services Administration and has consistently earned a reputation as being among the top programs in the country. The program consists of a 54-week didactic phase conducted at the U.S. Army Medical Department Center and School, Fort Sam Houston, TX, followed by a 52-week administrative residency at a military or other federal health care institution designated by the member's service or department.

The program is tailored to the specific needs of the services. Modifications, such as the addition of courses in managed care, productivity, and negotiations, as well as major expansions of financial management and labor relations, have placed the program on the leading edge of graduate preparation for leadership positions in a variety of health care settings. The

revised didactic phase of the program consists of 16 core courses taken by all students and 4 elective courses in a variety of concentrations. Concentrations include Resource Management, Human Resources Management, Patient Administration, Health Care Operations, General Administration, and Clinical Administration. Successful completion of the didactic and residency phases, to include a comprehensive oral examination and the Graduate Management Project, leads to the award of a Masters of Health Administration Degree from Baylor University. These modifications enhance the relevance and applicability of the program for students of all health care disciplines in all sectors of the federal government.

The prerequisites for applicants include: (a) Federal Service employment, (b) a baccalaureate degree or first professional degree from an accredited educational institution, (c) completion of at least an introductory course in statistics and economics at the undergraduate level, (d) a composite Verbal and Quantitative Graduate Record Examination score of 1000 or a score of 500 on the Graduate Management Admission Test within the past 5 years, and (e) an overall 2.7 undergraduate grade point average (GPA) on a 4.0 scale or a GPA of 3.0 on a 4.0 scale based on the last 60 hours of undergraduate work. (Note: Graduate course work toward a degree program is accepted by Baylor University and is used in the computation of the GPA.)

# Perinatal Home Health Care Excellence at Naval Hospital Camp Pendleton

LT Marcia Gill, NC, USNR

Until recently, Navy nurses have provided medical care in hospitals, clinics, aboard ship, and in field settings. Today, nurses at Naval Hospital Camp Pendleton, CA, are providing care in the home as well. Home Health visits are the pinnacle of Pendleton's trendsetting Perinatal Home Health Program, which has served new mothers and their newborns since 15 Nov 1994.

*It is 8:30 a.m., and a young Marine wife is tired. Her new baby, Ryan, has been crying all night! Her milk has come in and she is engorged. She has been trying to nurse her baby, but he just seems to get more and more upset. Maybe she should give up on breast feeding; it doesn't seem to work anyway. She wonders whether she will ever get it right. Her family lives 3,000 miles away, and her husband tries to help, but he doesn't have the answers either. She also worries whether her son's circumcision looks OK... Maybe that is why he has been crying so much... Clean-*

*ing his navel has been really difficult... Maybe the Home Health nurse will be able to help.*

*The doorbell rings. Cuddling her baby closely, the new mother hurries to the door and greets the Home Health nurse. "I am SO glad you are here... I have a lot of questions to ask you. Ryan is hungry and I can't seem to feed him the right way. My breasts really hurt and I'm not sure he is getting any milk. And, I hope you have time to look at Ryan's circumcision."*

*The nurse brings her equipment into the living room and starts to set up. "Don't worry, we will take all the time we need to make sure all your questions are answered."*

This scenario is a very typical one for the Perinatal Home Health Program nurses, who visit referred mothers and their newborns Monday through Friday within a week of discharge from Naval Hospital Camp Pendleton. The free visit is offered to mothers who deliver their babies at the hospital and who live within a 40-

mile radius of the hospital. The majority of mothers who accept the visit are seen on a weekday within 1 to 6 days of discharge or as ordered by medical provider, up to 6 weeks postdelivery. Home Health nurses also make visits on referred newborns under 6 weeks of age who are readmitted to the inpatient pediatric ward after discharge. Military beneficiary outpatients seen in the Pediatric, Obstetric, or Family Practice Clinics who did not deliver at the Naval Hospital, but have special needs, are also referred to the program.

A difficult medical and nursing challenge is providing effective health education to the childbearing family after the delivery of a new baby. One of the most turbulent times for a family is the birth of a child. The postpartum period involves family adjustment, and the performance of new caregiving activities for both mother and the newborn that are not instinctual. Although hospitals strive to provide instruction for all mothers on self and baby care, it has been well documented that many

factors inhibit the integration of this new information.(1-7) These include the maternal afterbirth pain level, maternal sleep deprivation, the hospital environment, maternal emotional readiness to learn, and various distractions. Only after discharge does the mother become aware of her learning needs and become ready to absorb the new information.(7-9) Unfortunately, once at home the new mother is more disconnected from the professionals who can assist her to properly care for herself and her newborn. This can be especially true for military families who may be isolated from extended family support.

Since 15 Nov 1994, the Perinatal Home Health Program nurses have

made 3,436 home visits and served 1,782 postpartum mother/baby couples after hospital discharge.

The two Home Health nurses have independent caseloads, drive government vehicles to home visits on and off base, and utilize beepers and cellular telephones for safety and communications. The home visit lasts about 60-90 minutes. Typical visits include physical assessments on mother and newborn, answers to questions, assistance with breast feeding or bottle feeding concerns, ordered or needed blood work, review and instruction regarding maternal and infant care activities, newborn safety, parenting, sibling rivalry, nutrition, resources for family needs, and provision of a comprehensive

information packet to assist with future self and infant care activities. If significant medical problems are identified, the nurse contacts the patient's physician via cellular phone. Additional medications, lab work, or clinic visits can be ordered immediately. In 10 percent of cases the physician orders another home visit after collaboration with the nurse. These visits most often involve additional laboratory testing; monitoring of newborn weight, temperature, or feeding; maternal blood pressure monitoring; wound care; additional teaching; or parental reassurance with self and infant care abilities.

Most mothers appreciate a visit by the nurse in the comfort of their own



**Members of Multidisciplinary Home Health Planning Team (author is third from right) surround HM3 Nichole Smith and daughter Madison, Home Health recipients.**

home, and are reassured by having their newborn examined, having their questions answered, and having the nurse solve problems that did not occur in the hospital. It also helps the nurse to better meet the family needs in the home environment, where she can individualize teaching to the family home environment and social situation. Besides the convenience of a home visit, families feel comfortable in their own surroundings, they show better ability to concentrate, and they can better apply newly acquired skills or knowledge to the familiar home environment.

### **Program Impact**

The impact of the Home Health program at Naval Hospital Camp Pendleton has been significant. It has improved childbearing family outcomes through care continuity, improved access to high-quality, cost-effective care, through education, and by establishing links to hospital and community resources. Surveys indicate extremely high patient and physician satisfaction with service delivery. Hospital and clinic work loads have been reduced by the program due to decreased hospital length of stay, decreased clinic visits, and a decrease in newborn and maternal hospital readmission rates.

### **Work load on the inpatient maternal/child ward and the pediatric ward have been decreased, due to earlier discharges and fewer readmissions.**

• Mother and baby can now leave the hospital earlier with the confidence that they will still soon receive a home visit by a nurse. Doctors feel more comfortable in allowing patient discharge, knowing that the Home Health nurse will provide excellent followup and bring any problems to their attention immediately.

• Early identification of significant

problems by the Home Health nurse led to swift resolution for 40 mothers and 67 infants from February 1994 to September 1996.

• 20 of 67 newborns were readmitted to the hospital to treat newborn jaundice after identification by the Home Health nurse.

• Early Home Health diagnosis of jaundice led to a significant 15 percent reduction in the required hospitalization time.

• 83 percent decrease in newborn readmissions for feeding-related problems.

• 86 percent increase in general readmissions for newborns delivered at other hospitals who did not benefit from the Home Health program.

### **Significant decrease in the outpatient clinic work load, making spots available for other patients.**

• 40 fewer newborn Pediatric Clinic visits per month because of timely Home Health visits after discharge, and needed laboratory tests obtained at the visit.

• 20 fewer newborn Pediatric Clinic visits per month with Home Health followup visits for newborns.

• Direct admission to the hospital for serious problems noted at the home visit for one newborn each month.

• Reduced early postpartum Obstetrical Clinic checkups because of timely Home Health visit after discharge.

### **Postpartum mothers are extremely satisfied with the program, its nurses, and its services as reported through a questionnaire.**

• 95 percent overall satisfaction with the program.

• 97 percent of mothers in FY95 and 98 percent of mothers in FY96 reported that they enjoyed their Home Health visit.

• 98 percent of mothers in FY95

and 99 percent of mothers in FY96 indicated that they would recommend a visit to other mothers.

• 91 percent of mothers in FY95 and 96 percent of mothers in FY96 reported that they would like to have a Home Health visit with their next baby.

• The four top reasons why mothers liked the program were the quality of nursing care, the quality of information they received, the parental support, and having a visit at home.

The questionnaires have been statistically analyzed to have 98 percent internal reliability, and there was minimal variation across demographic factors such as age, ethnicity, level of schooling, number of prenatal classes attended, and branch of service.

### **Physicians reported high satisfaction when polled with a questionnaire.**

• 96 percent overall satisfaction with the program.

• 85 percent felt that the Home Health program saves them time.

• 81 percent believe that Home Health services improve patient outcomes.

• Patients returning to the clinics for followup visits are better informed and report fewer problems.

• Physicians routinely utilize Home Health services for patients living within service area.

### **Home Health nurses enjoy their work.**

• They feel that their work is rewarding and that it makes a visible difference.

• They are able to identify and resolve problem early.

• Visiting the family in their own home is refreshing, relaxed, and conducive to teaching.

• Nurses feel valued in the highly collaborative team ethic they share with physicians.



**HM3 Nichole Smith and newborn daughter Madison receive a Home Health visit from LT Alda G. Moura, NC.**

## **Program Development**

The military health care system, like its civilian counterpart, has felt the shrinking of health care dollars. Pioneers in military medicine are taking the challenge by developing health promotion programs that continue to emphasize quality and continuity of care without significantly increasing the cost. Concurrently, efforts to control rising health care costs have resulted in a trend toward decreasing the hospital stay and a shift toward nonhospital-based care.

The benefits of combining hospital discharge with home followup programs have been extensively studied and identified in the literature.(10-20) Many researchers found that postpartum followup is beneficial to childbearing families, and have recommended that it be an integral discharge component. For years, short-term perinatal Home Health followup has been cited to be a safe, economical, and effective strategy for both the family and the health care facility. (2,10-14,20-23)

At Naval Hospital Camp Pendleton, the development of the Perinatal Home Health Program for childbearing families was in alignment with the hospital mission with their emphasis on quality health care. It helps to fulfill the hospital mission statement with regard to timely access, appropriate resource management, continuous quality improvement, promotion of wellness, patient and staff education, and supporting operational readiness of the Navy/Marine Corps team.

The success of the unique Perinatal Home Health Program was due in large part to utilizing a multidisciplinary team approach to planning and implementation. Program planning began in February 1994 with three military nurses assigned to the planning team. These nurses were the full-time core of a 10-member multidisciplinary team identified by hospital administration. It consisted of members from nursing, medicine, social work, and administration. The team met on a bimonthly basis. Total Quality Leadership techniques were employed to meet the

team's collective mission to develop and implement the program by FY 95.

During the 9-month planning phase of the program, many avenues were taken to identify the needs of the Camp Pendleton childbearing families living on or off the sprawling 125,000 acre base. "Gaps" in service delivery were identified. A previous study of new Camp Pendleton mothers found that they had many learning needs after discharge, and that they wanted "the resource to come to them."(24) New mothers reported isolation from the Naval Hospital for followup care due to transportation issues, obtaining child care for other children, and a lack of knowledge regarding access to their health care system. Hospital utilization review statistics indicated that many families did not return sooner than the next scheduled well child visit even when experiencing problems in the home. The statistics also identified the third day after hospital discharge as the most common day for new families to seek clinic or emergency room care. By that time, families are most likely to experience newborn feeding problems, jaundice, or maternal uterine or breast infections. In many cases newborns were seen in the emergency room or clinic for non-emergent problems that could have been handled at a home visit.

In addition to the Camp Pendleton findings, the needs of the perinatal population were identified through comprehensive literature reviews, interviews with service providers, and research of community service programs. Program regulatory requirements were identified by communication with the California State Board of

Nursing, federal and state regulatory agencies, private Home Health agencies, and resource providers. Additional hospital departments became involved in planning activities as needed.

Team members shared team progress and issues with their departments, and assisted to revise and perfect the program plan. With this active collaboration and revision, the final product was one which was congruent with the hospital mission, and which met the needs of both patients and medical providers. Initial program planning included antenatal services, but the planning team decided to limit scope to the postpartum population. This decision was made because of staffing limitations and difficulty in agreeing upon antenatal services to be provided.

Beginning in November 1994, home visits were offered to childbearing families referred for identified risk factors. With the addition of a third Home Health nurse and a program clerk, the program expanded in January 1995 to conduct 170 visits per month, encompassing all Naval Hospital postpartum families living within the service area.

In its second year of operation, as three military staff nurses received PCS orders or transfers, they were replaced by two government service registered nurses. Also, the billet for the government service program clerk position was replaced with a government service coordinator/office manager/LVN. Present program staffing includes a military division officer, two Home Health nurses, and the office manager/scheduling coordinator.

## JCAHO Accreditation

Using American College of Obstetricians and Gynecologists (ACOG) and Joint Commission on Accreditation of Health Care Organization

(JCAHO) standards as guidelines, the program was initially designed with emphasis on care coordination and continuity of inpatient/outpatient services. In May 1995, JCAHO mandated a survey of the program against standards for dedicated independent Home Health agencies. Since the Perinatal Home Health Program was designed only as a hospital-based program, redesign was necessary to meet all applying requirements of independent Home Health agencies. In July 1995, within 8 months of its launching, the program was reviewed for 3 days by the JCAHO home care surveyor. This survey involved examination of the program manual, infection control policies, quality improvement, staff personnel and training records, and a home visit documentation review. The surveyor also accompanied two Home Health nurses on home visits. The end result of this thorough examination was JCAHO Home Care Accreditation, a first in military history!

The Perinatal Home Health Program is leading the way toward effective home care in the Navy and beyond. Its services will continue to grow in importance as legislation across the country focuses on the importance of promoting maternal/newborn care and education to ensure healthy outcomes and as parents demand more customer-focused care.

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LT Gill is stationed at Naval Hospital Camp Pendleton, CA. She served as team leader of the Multidisciplinary Home Health Planning Team and as division officer of the Home Health program through September 1996. She is currently assigned to the operating room.

# Flag Officer Selections

**RADM Joan M. Engel, NC**, Director of the Navy Nurse Corps and Assistant Chief, Operational Medicine and Fleet Support, received her second star. She is a native of St. Marys, PA, and is a 1961 graduate of Mercy Hospital School of Nursing, Buffalo, NY. She received a bachelor of education in public school nursing from Clarion University, Clarion, PA, in 1969. RADM Engel was Navy sponsored in 1981 to attend the University of Alabama, Birmingham, AL, earning a master of science in nursing degree with a dual major in community health nursing and nursing administration. She has attended numerous Navy-sponsored leadership and management courses, and was the first Navy Nurse Corps officer to attend the Johnson & Johnson Wharton Fellows Program in Management for Nurses.



RADM Engel has served as the Assistant Chief for Personnel Management and the Chairman of the Health Care Committee of the Interservice Training Review Organization (ITRO). In October 1995, with the disestablishment of the Health Sciences Education and Training Command (HSETC) and relocation of policy level functions to BUMED, she became the Assistant Chief for Education, Training, and Personnel.

RADM Engel is a Wharton Fellow, a member of the Federal Nursing Service Council, the American Nurses Association, Pennsylvania Nurses Association, the Association of Military Surgeons of the United States, the American Association of Nurse Executives, the Navy Nurse Corps Association, Sigma Theta Tau, the Naval Institute, and holds an honorary fellowship in the American Academy of Medical Administrators. Her decorations include the Legion of Merit, Meritorious Service Medal (four awards), Navy Commendation Medal (two awards), and National Defense Service Medal (two awards).

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**RADM Douglas L. Johnson, MSC, USNR**, Deputy Director of the Medical Service Corps, graduated from Texas Christian University and was commissioned in the U.S. Army in 1963. Upon completion of 6 years service, 4 of which were on active duty, RADM Johnson resigned his Army commission and returned to graduate school. In 1970 he received an M.S. from Trinity University in health administration, and in 1973 a Ph.D. in health administration from the University of Iowa.



In 1974 he accepted a reserve commission as a lieutenant in the Navy Medical Service Corps and also became the Assistant Dean for Administration of the Medical College of Virginia, Richmond, VA, and Assistant Professor of Community Medicine. In his Naval Reserve capacity, he served as medical school liaison officer and was responsible for the MCV affiliation with Naval Hospital Portsmouth, VA, and advised MCV Navy scholarship students. Additionally, RADM Johnson became Officer in Charge of the NR2 MARDIV Medical Detachment NR 4 FSSG in Poughkeepsie, NY. From late 1983 until January 1985 RADM Johnson drilled at the Naval Medical Command, Washington, DC, in an IMA billet and was assigned to NR NAVMEDCOM 106 when it was established in 1984. In 1985 he returned to New York and was appointed commanding officer of NR Bethesda 802. He served in that capacity for 2 years.

In 1986 RADM Johnson became president and CEO of Tidewater Health Care, Inc. in Virginia's Hampton Roads area. The following year he was designated commanding officer of NR Portsmouth 506 drilling at Naval Hospital Portsmouth.

In 1988 RADM Johnson again returned to Washington, DC, and served as the Medical Service Corps officer on the staff of the Commander, Naval Reserve Readiness Command Region Six for 2 years and in 1990 was appointed as commanding officer of the Naval Reserve Bureau of Medicine and Surgery unit for a 3-year tour. The FY95 MSC Reserve Flag Board selected him for promotion in November 1993 and he was frocked in September 1994. The FY98 Reserve Senior Health Care Executive Flag Board selected him for promotion to rear admiral (upper half).

RADM Johnson's personal awards include the Legion of Merit, Meritorious Service Medal, and three awards of NCM. He serves as a director on eight corporate and foundation boards including the Jamestown-Yorktown Trust, Cape Henry Collegiate School, Virginia Wesleyan College President's Advisory Council, and the Virginia Commission on Mandated Health Benefits. He is on the adjunct faculty of Albany Medical College and the Medical College of Virginia. RADM Johnson is the past president of the Association of Medical Service Corps Officers of the Navy and is a preceptor for the health administration programs of Washington University, Virginia Commonwealth University, the University of Iowa, and the University of Houston.

\* \* \*

**RADM Jerry K. Johnson, DC**, Assistant Chief for Plans, Analysis, and Evaluation, received his second star. A native of Waukesha, WI, RADM Johnson completed 2 years of pre dental study at Carroll College, Waukesha, WI. He enrolled in dental school at Marquette University School of Dentistry, Milwaukee, WI, receiving his dental degree in 1969. Additionally, he completed a rotating dental internship at Naval Hospital Philadelphia, PA, in 1970 and earned an M.S. degree in fixed prosthodontics from the University of Missouri at Kansas City School of Dentistry in 1975.



Dr. Johnson was commissioned in the Navy Reserve 1925 Program in 1965 and commenced active duty immediately upon graduation from dental school. After completing a dental internship at Naval Hospital Philadelphia and being augmented into the Regular Navy in 1970, he was assigned as assistant dental officer, Naval Station, Rota, Spain, from 1970 to 1973. Completing his fixed prosthetic residency program in 1975, he was assigned as the prosthodontist at Branch Dental Clinic, Quantico, VA, until 1977. He then reported aboard USS *Yosemite* (AD-19), homeported in Mayport, FL, as assistant dental officer. He was then assigned to the Naval Dental Clinic, San Diego, CA, from 1979 to 1984. During his 5 years there, he was a staff prosthodontist, developed and was the director for 2 years of the Navy's first Advanced Clinical Program in General Dentistry, and then was selected as branch director of the Fleet Anti-Submarine Warfare Branch Dental Clinic. Reassigned in 1984 to the 2nd Dental Battalion, 2nd Force Service Support Group, Fleet Marine Force, Atlantic, Camp Lejeune, NC, he was the Company Commander of the 22nd Dental Company from 1984 to 1985, and Company Commander of 2nd Dental Company and 2nd Marine Division staff dental officer from 1985 to 1987. From 1987 to 1990 he was the executive officer at Naval Dental Clinic, Norfolk, VA. From 1990 to 1993 he was commanding officer of Naval Dental Center, Orlando, FL. In 1994 he was selected for flag rank and promoted to rear admiral (lower half) in July 1995, and assumed his present position.

Dr. Johnson is a member of the American Dental Association, American College of Dentistry, Omicron Kappa Upsilon Honorary Dental Fraternity, and Associa-

tion of Military Surgeons of the United States. His decorations include the Legion of Merit, Meritorious Service Medal with two gold stars, Navy Commendation Medal, Meritorious Unit Commendation, Navy "E" Ribbon, Navy Fleet Marine Force Ribbon, National Defense Service Medal, and Sea Service Deployment Ribbon.

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**RADM Jan H. Nyboer**, MC, USNR, assistant to the Assistant Chief for Reserve Force Integration, Bureau of Medicine and Surgery, was born on 22 Dec 1942 in Hartford, CT. After graduation from Hope College, Holland, MI, in 1964, he attended Wayne State University School of Medicine in Detroit, receiving an M.S. degree in 1965 and an M.D. in 1969.



Dr. Nyboer was commissioned an ensign on 18 June 1969 under the 1915 Medical School Program and began his active duty in 1979 at the Naval Aviation Schools Command, NAS Pensacola, FL. He was designated as a naval flight surgeon and remained at the Naval Aerospace Medical Institute, Pensacola, as Chief of the Flight Physical Examination Division and a member of the Special Board of Flight Surgeons.

Upon completion of his active duty in December 1973, Dr. Nyboer pursued a fellowship in ophthalmology at the Mayo Clinic, Rochester, MN, which concluded with a 3-month surgical rotation at the Guinness Eye Clinic in Kaduna, Nigeria. During his residency he served two annual training periods at the USCGB in Kodiak, AK. In 1976 he moved to Anchorage, AK, where he continued his private practice in ophthalmology and served as the medical officer to the Naval Reserve Center, Anchorage.

RADM Nyboer has commanded several reserve units, including the Naval Reserve Arctic Medical Support and Training Unit 2201 (1978-1979); the Naval Reserve Naval Hospital Bremerton Detachment 822 (1983-1986); and was assigned as medical officer and ophthalmologist to Naval Reserve Fleet Hospital 500 Combat Zone NINE, Detachment Q since 1987. He assumed command of Fleet Hospital NINE on 22 Sept 1991 and served until 9 Oct 1993. He was frocked to his present rank of rear admiral on 15 Oct 1994 and received his date of rank 1 Feb 1995. He was assigned as the Deputy Fleet Medical Officer,

U.S. Naval Forces, Europe, London, from October 1994 to October 1995.

RADM Nyboer's awards include the Meritorious Service Medal, National Defense Service Medal with bronze star, Armed Forces Reserve Medal, and Expert Medal for Pistol.

\* \* \*

**RADM Paul V. Quinn**, MC, USNR, Deputy Surgeon, U.S. Atlantic Fleet, is a native of Bound Brook, NJ. He received a B.S. degree from the University of Notre Dame in 1960 followed by his M.S. in pharmacology in 1964 and M.D. in 1968 from the University of Michigan. He trained in family practice at Midland Hospital, Midland, MI.



Commissioned a lieutenant (junior grade) in the Medical Corps in 1969, Dr. Quinn reported for active duty in 1970. Following training as a naval flight surgeon at Pensacola, FL, he was assigned to the 2nd Marine Air Wing, MCAS Cherry Point, NC, where he served as a squadron and group flight surgeon from 1970 to 1972. Leaving active duty in 1972, Dr. Quinn affiliated with the Navy and Marine Corps Reserve Center, Minneapolis, MN. During subsequent years, he served as flight surgeon for several Navy and Marine units, and commanded the 4th Marine Air Wing medical unit. In 1987, he was assigned as Director of Health Services for Reserve Readiness Command Region 16. From 1990 to 1993 he served as commanding officer of Naval Reserve Fleet Hospital 23. Selected for flag in November 1993, Dr. Quinn reported to his current position in September 1994. In 1996 he was selected for his second star.

Since 1972, RADM Quinn has practiced family medicine in Stillwater, MN. He has also served as county physician, deputy coroner, high school team physician, and staff physician for the Minnesota Maximum Security Prison. He is a clinical professor at the University of Minnesota Medical School.

Dr. Quinn's awards include the Meritorious Service Medal, Navy and Marine Overseas Ribbon, National Defense Service Medal with gold star, and Armed Forces Reserve Medal.

\* \* \*

# A Tradition of Excellence—

## Our First 50 Years and . . .

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On 4 Aug 1997, the Navy Medical Service Corps (MSC) celebrates a Golden Anniversary of dedicated service to the men and women of the Navy and Marine Corps team. The MSC was established following World War II when many professionals with diverse backgrounds made significant contributions in the Navy Medical Department. In an effort to retain these allied health professionals, the Army-Navy Medical Service Corps Act of 1947, Public Law 80-337, authorized formation of the MSC as a staff corps of the Navy. The MSC was established with four specialty sections: supply and administration, pharmacy, optometry, and allied science. The initial personnel strength across these four specialties was based on 20 percent of the officers in the Medical Corps.

The original 251 officers were commissioned on 10 Sept 1947 and are called plank owners of the MSC. Of the plank owners there were 47 ensigns, 49 lieutenants (junior grade), 125 lieutenants, and 30 lieutenant commanders. The rank of lieutenant commander was the highest these officers could reach until subsequent legislation authorized that MSC officers could attain the rank of captain. A common characteristic of the plank owners was that they had prior service in the Navy. Therefore, the entry rank into the MSC was based on length of prior

military service and amount of education completed at the time of the individual's commission. Fifty-six percent of the plank owners were former enlisted Hospital Corps petty officers who formed the supply and administration section of the MSC officers. The remaining 44 percent of these officers made up the three other specialty sections: optometrists (4 percent), pharmacists (15 percent), and allied scientists (25 percent). The allied scientists were comprised of 18 diverse subspecialties (e.g., bacteriology, biochemistry, biophysics, chemistry, entomology, industrial hygiene, medical statistics, parasitology, pathology, pharmacology, physics, physiology, psychology, public health, radiobiology, sanitary engineering, serology, and virology).

To distinguish the MSC officers from other active duty naval officers, the uniform insignia was approved by the Bureau of Medicine and Surgery on 28 Aug 1947. The approved design was based on the Navy Medical Corps insignia. The insignia for the MSC was designated by the Uniformed Regulation as a spread oak leaf embroidered in gold with a twig attached below the stem. Until this day, term "twig" holds a special significance that denotes the officers of the Navy MSC.

Then, as it is today in the MSC, education played a critical role for establishing an entry grade and criteria for advancement. Individuals with prior military service were not required to complete a bachelor's degree during their enlisted years. Consequently, few of the plank owners in the supply and administration section had obtained a college degree before their commission into the MSC. Conversely, the pharmacists, optometrists, and allied scientists were required to have a bachelor's degree prior to commissioning. MSC officers of the past, present, and future will always be grateful to those early pioneers who set the precedent of community, dedication, and faithful service to the men and women of the United States Navy and Marine Corps.

# ... the Medical Service Corps Today

*"Multas Per Artes, Unum Officium" . . . Many Specialties, One Corps*

The MSC will forever be a diverse group of professionals, charged with a single mission, and focused as a single corps. The MSC vision embraces readiness and wellness and focuses our strength on achieving the mission of the Navy and Marine Corps team. From its inception in 1947, the MSC has continued to meet the challenges dictated by operational and readiness requirements. Active duty and reserve officers of the MSC have continued to provide quality health care, not only in the United States but throughout the world, wherever and whenever they are needed.

The MSC today comprises the kinds of people that the Chief of Naval Operations frequently talks about—a diverse population, varied by gender and race. The hallmarks for today's MSC are grounded in a strong commitment to lifelong learning through education, professionalism, and experience. Presently the MSC consists of approximately 2,700 active duty and 750 active reserve officers. Seventy-six percent of the officers are stationed within the United States, 16 percent are based overseas, and 8 percent are stationed on board naval ships. Approximately 80 percent of MSC officers are stationed in positions that directly support Navy Medical Department commands. The other 20 percent directly support other major claimant commands, e.g., U.S. Marine Corps (5 percent); Chief of Naval Operations (3 percent); Commander in Chief, Pacific Fleet (2 percent); and Commander in Chief, Atlantic Fleet (2 percent); and six other major commands (8 percent).

Today, competition and competence are highly prized not only in the private sector but also in the Navy. The MSC is committed to acquiring the "best and the brightest" and strives to remain a positive agent of change. In this effort, approximately 70 percent of the officers enter the MSC directly from the private sector and 30 percent are commissioned officers from the Navy enlisted ranks.

The MSC today consists of three broad specialty categories. These specialties are health care administrators (45 percent of the total MSC personnel), which total 11 subspecialty areas (e.g., financial management, information systems, patient administration, and medical construction liaison); health care providers (32 percent of the total MSC personnel) totaling 11 subspecialty areas (e.g., social work, clinical psychology, physician assistant, podiatry); and health care scientists (23 percent of the total MSC personnel) totaling 11 subspecialty areas (e.g., aerospace physiology, biochemistry, microbiology, and physiology).

Within the personnel force structure, as established by the Defense Officer Personnel Management Act (DOPMA) of Sep-

tember 1981, the MSC is authorized to have 5 percent captains; 11 percent commanders; 23 percent lieutenant commanders; and 61 percent lieutenants, lieutenants (junior grade), and ensigns. DOPMA was established to standardize force structure, opportunity, and flow points for all grades within each military service. Within the personnel force structure, female officers make up 24 percent of the active duty MSC. This compares with only 12.4 percent of female officers in the "Line" Navy. Additionally, 7 percent of the MSC officers are African-American, 4.1 percent Asian-Pacific Islanders, and 3.3 percent Hispanic Heritage.

Through aggressive recruitment programs and outstanding educational opportunities for full-time academic training, the MSC leads the way in the Navy with more than 16 percent of the MSC officers holding a doctor of philosophy (Ph.D.) degree, 44 percent a master's degree, and 40 percent a bachelor's degree. This is quite a contrast with the 1947 education entry-level requirements for the supply and administration section of the corps. Today, all new accessions competing for entry into the health care administration specialties are required to have a master's degree from an accredited health care administration curriculum.

MSC officers are distinguished graduates of accredited colleges and universities throughout the United States. For example, during this fiscal year, a total of 107 MSC officers are enrolled in full-time graduate and postgraduate degree programs. Fields of study range from medical physics at the University of Oklahoma, engineering psychology at the University of Illinois, behavioral medicine at Dartmouth Medical School, a doctoral program (Ph.D.) in health services administration at the University of Iowa, to operations analysis at the Naval Post-graduate School. Additionally, MSC officers are enrolled in development programs at the Amphibious Warfare School, War Colleges, and the Staff and Command College.

During this critical time of rightsizing the Department of Defense, the challenges for the MSC are to be both efficient and effective with the right personnel, in the right place, with the right training, at the right time. It is clear that the MSC officers who excel in professionalism, experience, and performance are highly visible throughout the Navy. In the challenging days ahead, the MSC will require more than just the right mix of personnel; the success of the MSC will be centered around the basic principles that give a clear purpose and the positioning of solid leaders who can provide strong direction.

With 50 years of solid growth and dedicated service, the professionals of the Medical Service Corps are prepared to take the lead in ensuring Navy medicine meets its daily and operational missions into the 21st century.

*"Charlie Golf One"*



# There Were Many Heroes: Hospital Corpsmen in World War I

HMCS(FMF) Mark T. Hacala, USNR

World War I was a conflict that produced indescribable carnage to an unprecedented degree. Technology had introduced weapons systems which produced casualties in horrifying new ways: mustard gas killed and blinded, the machine gun cut down hundreds of men in seconds, submarines stealthily attacked ships with self-propelled torpedoes, and the airplane delivered death from the skies. Faced with this new way of waging war, the Navy Hospital Corps began a new age of reorganization and growth.

## Prewar 1916-1917

In 1916, the Navy maintained a busy assortment of seagoing and overseas commitments. Global U.S. involvement had grown with acquisition of foreign possessions following the Spanish-American War in 1898. Everywhere sailors and marines served, an overworked body of hospital corpsmen struggled to meet their medical needs. In a Navy and Marine Corps whose combined strength was 67,000, a mere 1,562 were enlisted hospital corpsmen. These few had to provide service in a dozen naval hospitals, in

the ships of the fleet, with the Marines, and overseas.<sup>(1)</sup>

This was no small problem. The shortage of enlisted medical personnel was so great that a temporary loss to leave or illness left many sick bays unattended. Further, the enlisted Hospital Corps at this time consisted of only three rates—hospital steward (chief petty officer), hospital apprentice, first class (third class petty officer), and hospital apprentice (equivalent to seaman, second class). With no second or third class petty officer rates, the lack of advancement oppor-

**Opposite page:** A postcard depicting medical training at Great Lakes in 1917. Note the Hospital Corps pouch worn by the sailor dressing the wound. (Author's collection)

tunities depleted the morale of these hospital corpsmen even more.

Strong recommendations from the Bureau of Medicine and Surgery convinced Congress to reorganize the Hospital Corps. The Navy personnel bill passed in August 1916 increased the corps' strength to 3 1/2 percent of the total strength of the Navy and Marine Corps. That law also provided for the establishment of medical third and second class petty officers, and put the pay and status of all hospital corpsmen on a par with their equivalent rates in the seaman branch of the enlisted Navy. Finally, the Hospital Corps' petty officer rating title was changed to pharmacist's mate.

A flurry of recruiting activity ensued. Prospective hospital corpsmen were sought from among new Navy and Marine Corps enlistees and from transfers from other ratings. A Hospital Corps recruiting poster and booklet were prepared and distributed in recruiting stations and post offices, and

articles describing the corps were placed in medical publications. By July, 1917 the corps had achieved its authorized strength of 6,000.(2)

With the massive increase in numbers came the task of training the new medical sailors. Even if enlistees had previous experience in civilian pharmacy schools or other medical pursuits, a knowledge of the Navy and Marine Corps, their organization, and administration was necessary to make an effective hospital corpsman, even at the nonrated levels.

Training the new men would be a daunting task. The Hospital Corps School of Instruction had been established in Norfolk, VA, in August 1902 and moved to Washington, DC, in October 1907. The Washington school operated until February 1911 when it was closed. For the next 3 years there was no formal school for prospective hospital corpsmen. The resulting lack of well-trained hospital corpsmen prompted the establishment of new training sites in 1914. The first was opened at Newport, RI, in the fall of 1914 and the second on Yerba Buena Island in San Francisco, CA, in early 1915.

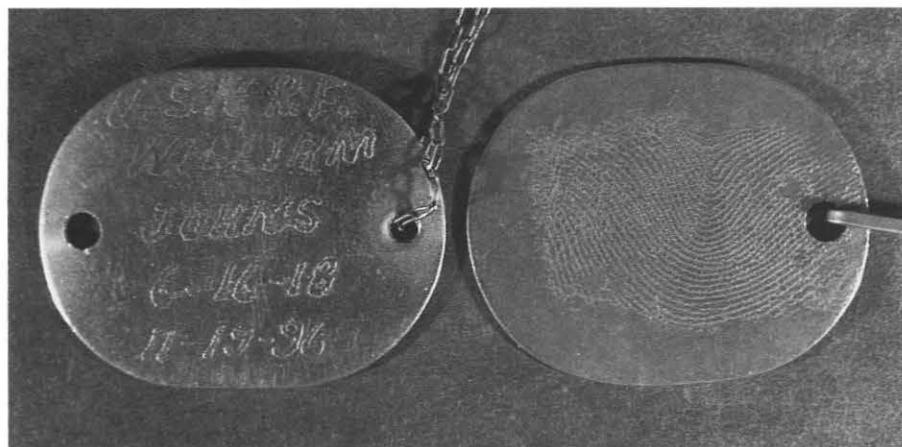
Between them, the two Hospital Corps Schools graduated 100 new hospital corpsmen from the 6-month course in 1916. A third school at Great Lakes, IL, was begun to accommo-

date the increased number of students in March 1917. But the next month, as plans solidified to send these graduates to hospitals and sick bays, the United States entered World War I.(3)

## The Great War: April 1917

With the new wartime increases the Hospital Corps Schools were swamped. Each of the student bodies had already quadrupled to some 200, but within a month of the declaration of war they had over 800 students apiece. The Bureau of Medicine and Surgery temporarily reduced the course length from 6 months to 3, and the Norfolk school was reestablished. The backlog of untrained hospital apprentices was further reduced through on-the-job efforts of shipboard medical officers and naval hospital staffs.

Civilian schools and hospitals created courses to help train this influx of new hospital corpsmen. Columbia University's Pharmacy School offered its facilities to meet the Navy's needs. The University of Minnesota provided a Hospital Corps training course in 1917 as did the Philadelphia College of Pharmacy in 1918. A special school was established to train Naval Reserve hospital corpsmen at Boston City Hospital. Intensive training of hospital corpsmen in the Transport and Cruiser Force was conducted between floats at 10 civilian hospitals in New York City, including Bellevue Hospital and the Rockefeller Institute's War Demonstration Hospital. A practical course in field medicine, the first of its kind, was established at Quantico, VA, for hospital corpsmen assigned to the Marines.(4)



**World War I Navy identification (dog) tags.** An individual's pertinent information was inscribed on the front using an acid solution. The thumbprint was made on the reverse using the same acid, which left a painful chemical burn. (Author's collection)



*Left: A group of hospital corpsmen photographed in France in the summer of 1917. Note the pharmacist's mate third class rating badges on two of the sailors. (Author's collection) Below: Chief Pharmacist's Mate Raymond Watson was the pharmacy instructor at Hospital Corps School, Yerba Buena Island, San Francisco, from 1917-1918. (BUMED Archives)*



Standardized education was eased by the 1917 revision of the *Handy Book of the Hospital Corps* by Passed Assistant Surgeon John B. Kaufman. This work covered the variety of topics hospital corpsmen would need to master rapidly. Subjects included anatomy and physiology, first aid, bandaging, O.R., and surgical technique. Further chapters pertained to nursing, ward management, sanitation, *materia medica*, toxicology, and clerical duties.(5)

Medical arts and sciences were at a fascinating state of development during the World War I period. Just over 50 years earlier in the Civil War,

purulent dressings were transferred from patient to patient on the theory that a pus-filled wound was part of the healing process. Microscopes were unheard of in civilian hospitals, much less in military medical facilities. Anesthesia might have consisted of a shot of brandy or a whiff of chloroform, if available. Gunshot wounds to the limbs almost universally resulted in amputation. Of the variety of toxic chemicals prescribed as "medication," only a few had curative properties of any kind. Two of the most common, opiates and quinine, were usually prescribed for everything *except* intense pain and malaria chemoprophylaxis.

The state of the art in 1917 had moved ahead dramatically. Microorganisms and their ability to cause any number of specific diseases were not only known in medical schools but were taught to each new hospital corpsman. Surgical instruments and operating rooms were now religiously sterilized with heat, steam, or chemicals. Patients in the operating room were anesthetized with ether or nitrous oxide. Open wounds were irrigated, cleaned with iodine tincture, debrided, and blood vessels ligated. Salicylic acid was now employed as an antipyretic and anti-inflammatory; amyl nitrite for angina; epinephrine as a cardiac stimulant and a superficial vasoconstrictor in surgery; morphine now was given to ease pain, and quinine to combat malaria. All hospital corpsmen learned artificial respiration through application of back pressure.

Despite the monumental leaps in



the science, the voodoo quality of 19th century medicine had not been overcome completely. Subsequent to administering artificial respiration, the 1917 *Handy Book* suggests vigorously rubbing the patient's extremities toward the heart, applying hot bricks or sandbags to the patient to maintain body temperature, applying mustard plasters to the wrists and feet to stimulate circulation, and injecting the patient with a dose of strychnine.<sup>(6)</sup>

### Hospital Corps Assignments

U. S. entry into the war required a massive increase in the size of the fleet. At the beginning of 1917 the Navy had but 300 ships of all kinds, so commercial and private vessels were purchased and converted for Navy use. New construction was begun on many classes of surface and submarine craft. Including ships under construction and some that were no longer in active use, the Navy list had grown to 1,433 ships by November 1918. This number was substantial com-



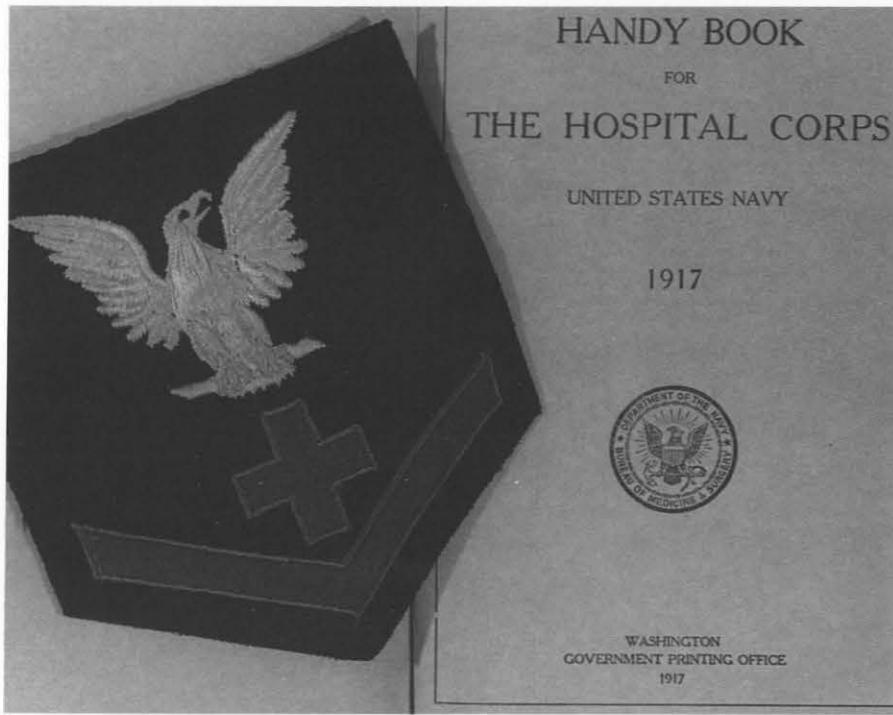
pared to the Navy's peak of 800 ships in the Civil War and 312 in the Spanish-American War. In any case, the augmentation would create hundreds of new shipboard medical departments that required hospital corpsmen.<sup>(7)</sup>

No matter what type of ship, hospital corpsmen were required to perform a wide variety of tasks. Ships' companies were subject to injuries resulting from the day-to-day operations of the vessel. Hundreds of sailors from different states living in tight quarters created the opportunity for diseases to spread rapidly. Medical record maintenance, providing immu-

**Above:** Five pharmacist's mates from Headquarters Company, 7th Marines, taken in August 1917 at Guantánamo Bay, Cuba. Hospital corpsmen served with Navy and Marine Corps elements throughout the world during World War I. Note the pharmacist's mate first class rating badge and red cross brassards. (BUMED Archives) **Left:** World War I chief petty officer's service dress cap. This style of cap was used by senior enlisted personnel from the 1880's until well after the end of the war in Europe. (Author's collection)

nizations, and training the ship's personnel in basic first aid all made for a busy day in sick call.

Hospital corpsmen implemented new shipboard medical department procedures which were introduced in 1917. New policy dictated that, in combat, casualties would be treated at designated battle dressing stations. These stations would be located in several well-protected areas of the ship and would have metal lockers stocked with dressings and other medical supplies and equipment. Bulkheads would be marked with a red cross and arrow pointing the way to



*Left: World War I rating badge of a pharmacist's mate third class and the title page of the 1917 *Handy Book of the Hospital Corps*. (Author's collection)*  
*Below: A hospital corpsman driving a Navy ambulance from the Base Hospital, Strathpeffer, Scotland, 1918. (BUMED Archives) Opposite page: Hospital corpsmen at a regimental dressing station near Verdun, France. Note the spiral-wrapped "puttees" around the men's legs. (BUMED Archives)*



the nearest station. Newer ships were being built with these medical department modifications already in place. (8)

In addition to combatants and auxiliary craft, hospital ships were a likely assignment for many hospital corpsmen. The Spanish-American War veteran *Solace* was in service for this conflict, and was joined by *Comfort* and *Mercy* in the fall of 1917. Others were planned or under construction. Hundreds of hospital corpsmen performed patient care, laboratory, and pharmacy duties aboard these floating treatment facilities. In addition to their prescribed medical responsibilities, hospital corpsmen aboard hospital ships were also detailed as messmen, commanding officers' orderlies, and even as signalmen on the bridge.(9)

Overseas assignments were not limited to those enroute to France. Hospital corpsmen faced the challenges of disease, injury, and wounds in remote locations around the globe. Fifty-eight hospital corpsmen were

assigned to Marine Corps occupational forces in Haiti and Santo Domingo, including 10 who were on loan to the Haitian gendarmerie or police force. Fifteen more were stationed at St. Thomas, in the newly-acquired Caribbean territory of the U.S. Virgin Islands. Twenty-five served on Guam and another 14 in Samoa. Hospital corpsmen were stationed in larger numbers at Guantanamo Bay, Cuba, in Panama, and in the Philippines.(10)

Although numerically small, the Hospital Corps contingent which had the most dramatic impact historically was the detachment serving with the Marines in France.

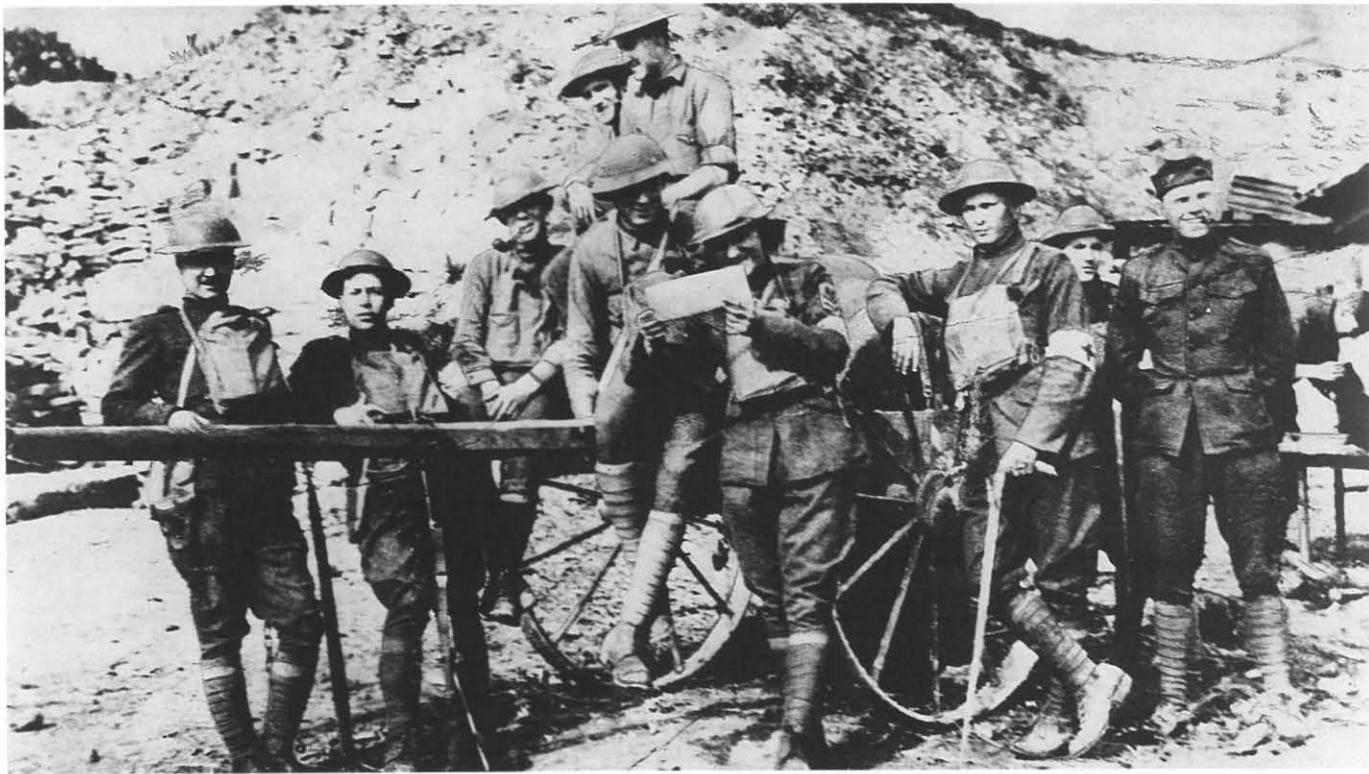
### **Hospital Corpsmen With the American Expeditionary Force**

Some 350 hospital corpsmen served with the Marines in France between 1917 and 1918, averaging 135 at any given time. This small group of men distinguished themselves by professionalism and valor and served as

inspiring role models for those who have followed.

Two regiments, the 5th and 6th Marines, and the 6th Machine Gun Battalion were assigned to the U.S. Army 2nd Division as part of the American Expeditionary Force (AEF). Hospital corpsmen assigned to these units mastered all aspects of service in the field, learned the gruesome art of trench warfare, and accompanied their would-be patients on the attack.

Two to four hospital corpsmen were assigned to each rifle company. A first or second class petty officer would act as the company corpsman and the others as platoon corpsmen. In the trenches or more fixed locations, *postes de secours* or company aid stations were established by these contingents. A battalion aid station would have from five to seven pharmacist's mates and a chief. The senior chief pharmacist's mate and six to eight more hospital corpsmen would serve at the regimental aid station.(11)



These hospital corpsmen lived and worked in arduous battle conditions. In one occurrence, a predawn mustard gas attack on the 6th Marines at Verdun in April 1918 had devastating consequences: 235 of the 250 in one company succumbed and had to be evacuated. The two company corpsmen worked furiously to treat the overflow of patients despite their own gas injuries. One of the sailors died and the other was permanently disabled. Assaults on German positions offered hospital corpsmen further chances to show their commitment. Their performance in a woods well known to Marines would cause the 5th Regiment's commanding officer to write, "there were many heroes who wore the insignia of the Navy Hospital Corps at the Bois de Belleau."(12)

In all, hospital corpsmen treated 13,380 Marine casualties and countless Army and French wounded. Of their own number, 164 were killed, wounded, gassed, or captured. Hospi-

tal corpsmen received 2 Medals of Honor, 55 Navy Crosses, 31 Army Distinguished Service Crosses, 2 Navy Distinguished Service Medals, and 237 Silver Stars. A hundred foreign personal decorations were granted to Navy corpsmen, and 202 earned the right to wear the French Fourragère shoulder aiguillette permanently. Their 684 personal awards make the Hospital Corps, by one account, the most decorated American unit of World War I.(13)

Whether in stateside hospitals, on ships, or in European fields, hospital corpsmen provided distinguished service, establishing a model for performance which continues to this day. At Belleau Wood and around the world, there were many heroes.

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# Naval Medical Research and Development Command Highlights

## ● Malaria Genome Project

Malaria is the most important tropical infectious disease in the world today, with an estimated 300-500 million cases and 2 million deaths annually. For DOD, malaria presents a grave threat to operational readiness. In every war this century, millions of man-days have been lost due to malaria. In 1995 the DOD spent over \$4 million stockpiling antimalarial drugs and insecticides to prevent infection in soldiers, sailors, and marines, and yet drug resistance is spreading throughout the malarious world, rendering most of these antimalarials ineffective. No licensed antimalarial vaccine is yet available, though great progress has been made understanding the complex interactions of parasite antigens, the host's immune system and protective immunity. In fact, Navy malaria researchers are at the forefront of vaccine development and the first to show that DNA immunization can protect against malaria. The present challenge is to find novel drug and vaccine targets that will circumvent the parasite's defenses. One way may be through uncovering the parasite's genetic "blueprint." Researchers at the Malaria Program at the Naval Medical Research Institute, Bethesda, MD, are working with other researchers at The Institute for Genomic Research (TIGR) and the Sanger Centre as part of an international consortium for molecular biologists, genome scientists, and bioinformatic specialists, working on the enormous task of sequencing the entire genome (30 million bases of DNA) from the malaria parasite, *Plasmodium falciparum*. The Malaria Genome Project is the largest microbial sequencing project to date and will splice together the entire genetic code of this important pathogen. Armed with the entire blueprint of the malaria parasite, malaria researchers will be able to design new drugs and vaccines. The Malaria Genome Project will provide the raw material for malaria researchers for at least the next decade.

## ● NAMRU-2 Receives WHO Recognition

The Naval Medical Research Unit No. 2 (NAMRU-2), Jakarta, Indonesia, a DOD infectious disease laboratory, has been designated by the World Health Organization (WHO) as a Regional Collaborating Center for New, Emerging and Re-emerging Diseases in Southeast Asia. WHO leads the international focus on the significant threat posed by an increase in infectious diseases around the world and is actively involved in improving disease surveillance. This designation means NAMRU-2 will become a clearinghouse for infectious diseases information in Southeast Asia, provide reference laboratory services, assist in disease outbreak investiga-

tions, and provide training for other nations in the region. NAMRU-2's primary mission is to support the operational commanders through research on infectious and preventive medicine guidance, a mission it has carried out with excellence in Asia since 1942. Current research efforts focus on malaria, cholera, typhoid fever, HIV, dengue fever, severe diarrhea, viral hepatitis, and Japanese encephalitis. In addition to regular research activities, NAMRU-2 is currently conducting threat assessments of infectious diseases for Joint Task Force Full Accounting and SOCPAC personnel deployed to Indochina. NAMRU-2 has also participated in several Cobra Gold exercises over the past years in Thailand; CARAT Cruises '96 and '97 in Southeast Asia; and more recently in Tandem Thrust '97, a large US/Australia combined exercise conducted in Australia; and Brave Canoe '97 in Cambodia.

## ● Navy Receives Patent for Experimental Biochemical Decompression Method for Divers

Decompression is a dangerous and time-consuming phase of any military diving mission. The current method of decompression, utilizing the Navy Diving Tables, is carefully controlled rates of ascent. The rates of ascent are selected based on past history of ascent rates with minimal incidence of decompression sickness (DCS). A new method to shorten decompression would reduce a time of great personal risk to the diver as well as reduce expenses of the dive operation. A new patent was recently issued to two researchers at the Naval Medical Research Institute, Bethesda, MD, for developing a biochemical method to accelerate gas removal from diver's tissues utilizing gas metabolizing bacteria. Biochemical decompression is a novel approach to eliminating the inert gas in a diver's body using nontoxic bacteria introduced to the intestinal tract to chemically eliminate the gas from a diver's tissues with no serious side, toxic, or immunological effects. This new method is designed for divers using a breathing mixture of oxygen and nitrogen or hydrogen. The metabolism of the hydrogen or nitrogen causes a reduction of the partial pressure of the metabolized gas in the large intestine and increases the diffusion of the metabolized gas from the blood and surrounding tissue into the intestine. The development of this work into an FDA-approved product for human-use trials is the next step for the researchers. Human trials are expected in 5 to 7 years.

For more information on these and other research efforts contact Doris M. Ryan, Deputy Director, External Relations, at DSN 295-0815, Commercial 301-295-0815, E-mail [ryand@mail-gw.nmrdc.nnmr.navy.mil](mailto:ryand@mail-gw.nmrdc.nnmr.navy.mil), or FAX 301-295-4033.

## Navy Medicine 1888



Naval Historical Center

Apothecary (first class petty officer) in dark jacket treats a patient in the sick bay of the protected cruiser *USS Boston*.

### What's in a Picture?

This photo shows several details of Navy enlisted uniforms of the period. Standing at the center of the photo in the dark jacket is an apothecary, the Medical Department's first class petty officer of the time. The rate of chief petty officer was not established until 1893. As the senior enlisted rate, first class petty officers wore a jacket and tie uniform. Components of blue and white uniforms could be mixed. The apothecary's cap badge is an oversized version of the Navy gold button, an eagle perched atop a foul anchor. The figure in the far left corner is also a first class, and could wear the white hat as prescribed in the 1886 Navy Uniform Regulations.

White hats pictured here were the first version used by the Navy. The hat presented an ungainly appearance, and

individual sailors would later modify the droopy brim by stiffening it with extra stitching. The heavily reinforced brim evolved into the style still in use. Assisting the apothecary is a nonrated sailor, identified as such by his watch mark, the stripe around his shoulder seam. Its placement on the right shoulder indicates that he belonged to the starboard watch section. The stripe was blue for deck personnel and red for engineering.

The sailor in the near right corner is wearing a sick list badge around his left arm (it should be on his right). The 2-inch cloth arm band was issued to those taken off duty by the medical department. The badge was stenciled with a number which was recorded in the ship's log to verify the sailor's status, today's light duty chit. □

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